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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,862	11/26/2003	Richard John Palicka	CERCOM-5	6073

7590 06/23/2005

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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,862

Applicant(s)

PALICKA ET AL.

Examiner

John J. Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

FIRST OFFICE ACTION

Drawings

1. The formal drawings received on April 7, 2004 have been approved.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 7-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cytron (H1434).
4. Cytron discloses a ceramic armor comprising a ceramic material encapsulated within a metallic material which has been plastically deformed about the ceramic material (e.g. see Figures 1-4 and claims 1-7). Cytron uses a frame with a number of rectangular openings in which ceramic tiles are fitted (e.g. column 2, line 63 - column 3, line 12) and a channel is formed to allow evacuation and formation of a vacuum (e.g. column 3, lines 31-34). The assembly is bonded in a press where the materials of the frame and cover layers are subjected to temperatures

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and pressures suitable to produce a superplastic state (e.g. column 3, lines 13-26). Cytron discloses the desirability of maintaining compressive stress on the embedded ceramic tiles (e.g. column 2, lines 15-41). Multiple layers of assemblies can be made (e.g. see Figure 4; column 4, lines 3-9). Claim 10 requires a plurality of separate side pieces, but it should be noted that this claim is a product claim and therefore the method and number of initial pieces by which the metallic material was assembled does not distinguish the claimed product over Cytron. Since the claimed final ceramic armor product is cohesively bonded and there is no evidence of record that separate initial frame pieces are distinguishable in the final product, there appears to be no difference in the applicant's final product and Cytron's final product regardless of process of assembly. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cytron (H1434) in view of Klimmek (U.S. Patent 3,616,115).

7. Cytron discloses a ceramic armor comprising a ceramic material encapsulated within a metallic material which has been plastically deformed about the ceramic material (e.g. see Figures 1-4 and claims 1-7). Cytron uses a frame with a number of rectangular openings in which ceramic tiles are fitted (e.g. column 2, line 63 - column 3, line 12) and a channel is formed to allow evacuation and formation of a vacuum (e.g. column 3, lines 31-34). The assembly is bonded in a press where the materials of the frame and cover layers are subjected to temperatures and pressures suitable to produce a superplastic state (e.g. column 3, lines 13-26). Cytron discloses the desirability of maintaining compressive stress on the embedded ceramic tiles (e.g. column 2, lines 15-41). Multiple layers of assemblies can be made (e.g. see Figure 4; column 4, lines 3-9). Claim 10 requires a plurality of separate side pieces, but it should be noted that this claim is a product claim and therefore the method and number of initial pieces by which the metallic material was assembled does not distinguish the claimed product over Cytron. Since the claimed final ceramic armor product is cohesively bonded and there is no evidence of record that

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separate initial frame pieces are distinguishable in the final product, there appears to be no difference in the applicant's final product and Cytron's final product regardless of process of assembly. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). Regarding claims 17-18 and 23, selecting the optimum pressure, atmosphere and temperature to suitably bond the assembly of Cytron would be considered by one of ordinary skill in the metallurgical art to be within the purview of skilled artisan depending on the particular materials chosen for the metal frame and the ceramic tiles. Pressures, atmospheres and temperatures best suited for pressure bonding can be obtained from metallurgical handbooks or from the suppliers of the materials. No patentable distinction over Cytron's invention has been found in the specific processing parameters of these claims. Regarding claims 2-6, 13-16 and 21-22, Cytron may not disclose specific ceramic materials and metal frame materials suitable for ceramic armor, but Klimmek clearly shows that combinations of titanium alloy, e.g Ti-6Al-4V (column 1, lines 20-42), and various ceramics, e.g. boron

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carbide, alumina, zirconia, etc. . . (e.g. see column 3, lines 6-16), are conventional in the art for armor. In view of Klimmek, it would have been obvious to one of ordinary skill in the art to use these conventional armor alloys and ceramics for the armor of Cytron because Klimmek discloses their known suitability for this purpose. It would be understood by one of ordinary skill in the art at the time the invention was made that any typical hard ceramic suitable for armor, e.g. SiC, could be used for the ceramic tile of Cytron. Regarding claims to the coefficients of expansion of the metal material and ceramic material, these properties would be inherent to the materials suggested by Klimmek and Cytron. Both references disclose that compression of the ceramic tiles by the metal material is desirable. Regarding claim 20 reciting using an EDM process to machine the frame, this is a standard metal machining process in the art and it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any conventional machining process suitable to machine the chambers of Cytron. Selecting the most cost effective and efficient machining process for process of Cytron would be well within the purview of one of ordinary skill in the metal machining art. Regarding claim 23, Cytron does not disclose the use of a high purity argon atmosphere, but Cytron does disclose the use a vacuum to remove air from the assembly and therefore it is clear that Cytron recognizes that air is detrimental to the bonding process. Therefore it would also be understood by one of ordinary skill in the art that a protective inert gas would also perform the same function of protecting the assembly from oxidation during processing. Using inert gases to protect workpieces during bonding is conventional in the metallurgical art.

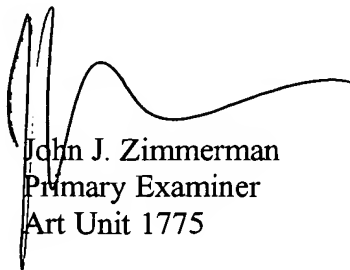
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Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited references serve to further establish the level of ordinary skill in the art.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John J. Zimmerman
Primary Examiner
Art Unit 1775

jjz
June 20, 3005